

IN CASE YOU MISSED IT...

Technical Presentation: Hydraulic Calculations

Presented by Karl Wiegand, PE



At a recent ASPE-NJ Chapter meeting, members participated in an informative session focused on the basics of hydraulic calculations for fire sprinkler systems, specifically those using tree-type layouts. The presentation served as a practical introduction for engineers and designers looking to deepen their understanding of sprinkler system hydraulics.

The class covered the general rules for performing hand calculations, beginning with how to determine the flow from the most remote sprinkler, a critical step in assessing system performance. Attendees explored the Flow Rate Equation, learning how to apply and manipulate it in various scenarios.

A key part of the session was the breakdown of the Hazen-Williams Friction Loss Equation, including a discussion of its variables and how friction loss impacts system pressure. The presenter also addressed how to factor in fitting equivalent lengths and how to properly adjust for them in manual calculations.

Additional highlights included practical tips for selecting pipe sizes and strategies for estimating overall system hydraulic demand, useful tools for quickly checking and verifying calculations before finalizing designs.

This well-rounded presentation provided attendees with valuable tools and foundational knowledge to approach fire sprinkler system design with greater confidence.

2024-25 February Meeting 06

Topic: Hydraulic Calculations
Speaker: Karl Wiegand, PE

Date: February 19th 2025
Location: Nancy's Townhouse

About the presenter: Karl Wiegand, P.E. – Karl works in the fire protection application engineering group at Victaulic where his primary duties consist of providing technical support, providing training, and representing Victaulic's interests within the fire protection industry. Karl holds a Professional Engineering license in the field of Fire Protection Engineering and is a graduate of Worcester Polytechnic Institute with a Bachelor of Science degree in Mechanical Engineering and a Master of Science degree in Fire Protection Engineering. Over the last fifteen years Karl has held positions on NFPA 15, 16, 24, 420, and 750 as well as AWWA's Backflow, Water Metering, and Fire Protection committees and Underwriters Laboratory's UL199 STP. Karl continues to represent the sprinkler industry on NFPA 13, 30B, 101, 820, and 5000, Underwriters Laboratory's UL262 STP, and the NFSA Engineering and Standards Committee.

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